

Mineral Industry Surveys

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FLUORSPAR IN THE SECOND QUARTER 2003

Reported fluorspar consumption in the second quarter was 140,000 metric tons (t), a nearly 5% decrease compared with the revised figure for the previous quarter and nearly 7% higher compared with the second quarter of 2002. Consumption of fluorspar for hydrofluoric acid (HF) and aluminum fluoride was 119,000 t, a decrease of 4% compared with the previous quarter and nearly 5% lower compared with the second quarter of 2002.

Imports

Imports of fluorspar were 90,400 t or about 50% lower than in the previous quarter. Import shipments of fluorspar reported in the monthly statistics provided by the U.S. Census Bureau appear to have significant errors during the months of March through June. During this period four shipments were classified as metallurgical grade, but the average value per ton (including cost, insurance, and freight) indicated they were most likely acid-grade material. In addition, in May, a shipment was classified as acid grade that was most likely metallurgical grade. Of these five shipments, three were from South Africa, one was from Spain, and one was from Mexico. A request for verification or correction of the import information was sent to the U.S. Census Bureau. Revisions will be made to the salient statistics table (average value per ton) and to the fluorspar import table when corrections are received from the Census Bureau.

Defense Stockpile

There were no sales of fluorspar during the second quarter of 2003. At the end of June, unsold stockpile material consisted of 6,800 t of acid grade, 77,100 t of metallurgical grade, and 12,600 t of sub-specification metallurgical grade. Material committed for sale pending shipment (as of June 3) totaled about 89,400 t of acid grade and 18,000 t of metallurgical grade.

Industry News

With the significant reduction of Chinese exports for the second year in a row, fluorspar is in tight supply. Viable non-Chinese exporters lack the capacity to make up the shortfall of 300,000 t, which is the amount Chinese exports have decreased since 2001. Some companies are attempting to increase

production, for example, Kenya Fluorspar Co. Ltd. is completing a debottlenecking and rehabilitation program at its plant near Kimwarer that will increase capacity from its current range of 90,000 to 110,000 metric tons per year (t/yr) to 115,000 to 120,000 t/yr. Global demand has decreased over the same period, but not nearly as much as the available supply. Behind the decrease in Chinese exports is the increasing domestic demand fueled by China's growing aluminum, construction, fluorochemicals, and steel industries (Crossley, 2003). Prices for Chinese fluorspar have gone up, although the U.S. import statistics only show a modest \$5 per ton increase in the second quarter compared with the first quarter of 2003. This is likely the result of carry over export licenses from 2002. As an indication of how tight fluorspar is becoming in China, at least one Chinese company has explored buying metspar or run-of-mine ore from Mexico to feed its flotation mill.

Canadian company, Burin Minerals Ltd. of St. Lawrence, Newfoundland, is preparing a new prefeasibility study on the reopening of the St. Lawrence fluorspar mine. The latest study is based on a new mine plan that is expected to be more economic than the one proposed in the first study. The first study, which failed to attract the necessary investment, called for underground mining, refurbishment and expansion of the mill to produce 180,000 t/yr, and for construction of a deepwater port facility at St. Lawrence (funded by the Provincial Government). The Provincial Government has reaffirmed its support and offer to construct the port facility, but as before, it is conditional on Burin attracting sufficient funding to carry forward the mine and mill project (Industrial Specialties News, 2003).

Atlas Minerals Inc. announced on June 18 that through its wholly owned Mexican subsidiary, Minerales Atlas S.A. de C.V., it had executed a 6-month option to purchase the La Barra fluorspar property in Sonora State, Mexico. The property is comprised of three claims covering 300 hectares (741 acres) and two underground mines that were reportedly last mined in early 1974. The property is located 80 kilometers (50 miles) south of Douglas, AZ, near the town of Esqueda. Any new mining operations would be within 19 kilometers (12 miles) of both an existing highway and railroad. Atlas estimates that prior mining

accessed less than 10% of the ore body, with much of the deposit remaining open along an apparent 3-kilometer strike length encompassed by the claims. During the 6-month term of the purchase option, Atlas will evaluate the mining claims and existing underground mines, including any purported reserves available for near-term mining, as well as, all aspects of possible future mine development, milling, product transportation, and end-use markets (Atlas Minerals Inc., 2003).

The State of Sonora has never been one of the major fluorspar producing areas in Mexico, and as a result little has been written about its potential fluorspar resources. The following discussion from Vertiz (1973) was sourced originally from a 1962 translation of an earlier U.S. Geological Survey report (Van Alstine, 1961).

The rocks occurring in the La Barra deposit are felsitic rhyolite, volcanic breccia, and volcanic conglomerate. They are probably of Tertiary age. The fluorite, occupies a vein trending north 20° west in a fault of the extrusive rocks. The vein dips approximately 70 degrees east. The ore shoots reach a thickness of up to 20 meters (m) and a length of up to 200 m. The vein has been explored for 100 m at depth. Fluorite generally occurs in coarse grain and in massive aggregates. The mineral content is estimated to be more than 50% CaF₂, and 10% SiO₂ which is present as quartz and as inclusions of extrusive rocks; the rest is manganese-bearing calcite (Vertiz, 1973, p. 30).

Fluorochemical News

The European Commission of the European Union (EU) has prepared draft legislation to reduce emissions of fluorinated gases in the EU by 25% by 2010. The proposed regulations form part of the commission's effort to cut greenhouse emissions as required by the Kyoto Protocol on climate change. The commission's regulations target combined emissions of hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride, and call for a reduction of 23 million metric tons of carbon dioxide equivalent by 2010. The proposed legislation includes provisions for reporting requirements to strengthen the monitoring of emissions; to improve the containment of

fluorinated gases; marketing and use restrictions where containment is not feasible or the use of fluorinated gases is inappropriate; and for a phaseout of HFC 134a in air-conditioning systems of new vehicles between 2009 and 2013. The European fluorochemicals industry, which agreed last year to help develop industry initiatives to control emissions of fluorinated gases, welcomed the commission's proposals but disagreed with the phaseout schedule for HFC 134a, given the current lack of a proven alternative. The regulations will require approval by all 15 EU member nations and the European Parliament (Young, 2003).

Ineos Fluor, part of the Ineos Group, announced plans to expand production of refrigerant HFC 125 at its plant in Runcorn, United Kingdom. The plant has operated as a swing plant, producing either HFC 125 or HFC 134a. The plant can produce either 2,000 t/yr of HFC 125 or 10,000 t/yr of HFC 134a. After the expansion, the plant will produce only HFC 125 with a capacity of 14,000 t/yr. The expansion is planned in two stages; the first stage will be completed by the spring of 2005. Ineos Fluor will expand capacity at its HFC 134a plants in Japan and the United States to compensate for the lost HFC 134a capacity at Runcorn (Industrial Minerals, 2003).

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TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2002			2003		
	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Year to date
Imports for consumption:	93,100	108,000	155,000	182,000	90,400	273,000
Value per ton, c.i.f. U.S. port, acid grade	\$129	\$129	\$122	\$128	\$121	\$125 ²
Value per ton, c.i.f. U.S. port, metallurgical	\$84	\$89	\$101	\$115	\$117	\$116 ²
Exports	6,170	6,020	5,390	8,170	8,090	16,300
End of quarter stocks, consumer	125,000	99,400	122,000	142,000 ^r	123,000	123,000
Fluorspar equivalent of imported hydrofluoric acid	51,700	48,500	34,000	47,900	51,000	99,000
Fluorspar equivalent of imported cryolite	1,210	1,730	4,860	1,480	6,650	8,140
Quarterly reported fluorspar consumption	131,000	147,000	151,000	147,000 ^r	140,000	287,000

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Average value.

TABLE 2
CONSUMPTION OF FLUORSPAR BY END USE AND ASSAY RANGE¹
(DOMESTIC AND FOREIGN IN THE UNITED STATES)

(Metric tons)

End use or product	First quarter 2003			Second quarter 2003			2003 Year to date
	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	More than 97% calcium fluoride	Not more than 97% calcium fluoride	Total	
Hydrofluoric acid and aluminum fluoride	124,000	--	124,000	119,000	--	119,000	244,000
Metallurgical	5,760	8,380	14,100	4,990	8,210	13,200	27,300
Other uses or products ²	8,130	--	8,130	7,800	--	7,800	15,900
Total	138,000	8,380	147,000 ^r	132,000	8,210	140,000	287,000
Stocks, end of quarter ³	111,000 ^r	31,100	142,000 ^r	94,000	28,800	123,000	123,000

^rRevised. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes acid grade used in enamel, glass and fiberglass, steel castings, and welding rod coatings.

³Stocks data include distributor stocks (excluding National Defense Stockpile holdings) and consumer stocks for hydrofluoric acid and aluminum fluoride.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FLUORSPAR, BY COUNTRY AND VALUE^{1,2}

	2002						2003					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year to date	
	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)
Containing more than 97% calcium fluoride:												
China	60,400	\$7,930	66,000	\$8,630	128,000	\$15,600	115,000	\$15,100	14,700	\$2,010	130,000	\$17,100
France	--	--	60	25	39	13	--	--	40	13	40	13
Germany	1	3	--	--	--	--	--	--	17	11	17	11
Japan	--	--	--	--	2,910	344	--	--	--	--	--	--
Mexico	6,490	864	8,950	1,100	11,200	1,330	11,900	1,380	16,800	1,820	28,700	3,200
South Africa	15,000	1,730	24,500	3,090	11,900	1,470	22,800	2,790	15,800	1,890	38,600	4,680
United Kingdom	2	2	--	--	276	34	20	3	44	22	64	25
Total	81,900	10,500	99,500	12,800	154,000	18,800	150,000	19,300	47,400	5,760	197,000	25,000
Containing not more than 97% calcium fluoride:												
Austria	--	--	128	11	--	--	--	--	--	--	--	--
Canada	34	11	40	14	37	12	--	--	--	--	--	--
Mexico	11,200	927	8,470	745	596	52	11,300	955	6,150	525	17,400	1,480
South Africa	--	--	--	--	--	--	2,000	228	36,900	4,520	38,900	4,750
Spain	--	--	--	--	--	--	19,100	2,540	--	--	19,100	2,540
Total	11,200	938	8,630	770	633	64	32,400	3,720	43,000	5,050	75,400	8,770
Grand total	93,100	11,500	108,000	13,600	155,000	18,900	182,000	23,000	90,400	10,800	273,000	33,800

-- Zero.

¹Imports for consumption include imports of immediate entry, and warehouse withdrawals.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Cost, insurance, and freight at U.S. ports.

Source: U.S. Census Bureau.

TABLE 4
IMPORTS FOR CONSUMPTION OF HYDROFLUORIC ACID¹

	2002						2003					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year to date	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)
Canada	7,590	\$9,130	8,800	\$10,700	5,830	\$6,940	8,580	\$10,000	11,000	\$12,500	19,600	\$22,500
Japan	336	837	394	1,030	283	724	389	978	184	442	573	1,420
Mexico	26,300	24,800	22,900	21,900	16,200	15,200	22,800	22,100	22,600	21,900	45,400	44,000
Other ³	278	382	244	321	392	559	202	307	261	368	463	675
Total	34,500	35,200	32,400	34,000	22,700	23,500	32,000	33,400	34,000	35,200	66,000	68,500

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Cost, insurance and freight at U.S. ports.

³Includes China, France, Germany, Italy, the Republic of Korea, the Netherlands, and the United Kingdom.